Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.   (Currently Amended) A method of determining alternans data of an ECG signal, the method comprising:

determining at least one value representing at least one morphology feature of each beat of the ECG signal;

generating a set of data points based on a total quantity of values and a total quantity of beats, the data points each including a first value determined using a first mathematical function and a second value determined using a second mathematical function;

separating the data points into a first group of points and a second group of points; ~~and~~

generating a feature map by plotting the first group of points and the second group of points in order to assess an alternans pattern of variation;~~,~~ and

determining an estimated amplitude of the alternans pattern of variation by determining a first center point and a second center point of the data points and determining a distance between the first center and the second center point.

2.   (Cancelled)

3.   (Cancelled)

4.   (Original) A method as set forth in claim 1 and further comprising assigning the data points representing an odd beat to the first group of points and assigning the data points representing an even beat to the second group of points.

5.   (Original) A method as set forth in claim 1 and further comprising:

generating a feature matrix based on the total quantity of values and the total number of beats; and

processing the feature matrix using a principal component analysis,

the principal component analysis generating principal component vectors and principal components,

the data points corresponding to at least one of the principal component vectors.

6.   (Original) A method as set forth in claim 5 and further comprising determining an estimated amplitude of the alternans pattern of variation by calculating a square-root of at least one of the principal components.

7.   (Original) A method as set forth in claim 1 and further comprising using the feature map to visually determine whether an alternans pattern of variation exists.

8.   (Original) A method as set forth in claim 7 wherein an alternans pattern of variation exists if the first group of points are spaced from the second group of points and an alternans pattern of variation does not exist if the first group of points are not spaced from the second group of points.

9.   (Original) A method as set forth in claim 1 wherein the first mathematical function and the second mathematical function each calculate a difference feature.

10.   (Original) A method as set forth in claim 1 and further comprising:

generating a second set of data points, the data points of the second set including a third value determined using a third mathematical function and a fourth value determined using a fourth mathematical function;

separating the data points of the second set into a third group of points and a

fourth group of points; and

generating a second feature map by plotting the third group of points and the fourth group of points.

11.   (Original) A method as set forth in claim 10 and further comprising:

generating a third set of data points, the data points of the third set including a fifth value determined using a fifth mathematical function and a sixth value determined using a sixth mathematical function;

separating the data points of the third set into a fifth group of points and a sixth group of points; and

generating a third feature map by plotting the fifth group of points and the sixth group of points.

12.   (Original) A method as set forth in claim 11 and further comprising comparing the feature map, the second feature map, and the third feature map to assess an alternans pattern of variation.

13.   (Original) A method as set forth in claim 1 and further comprising:

processing the data points using a cluster analysis, the cluster analysis generating a first cluster of points and a second cluster of points;

comparing the first cluster of points with the first group of points;

comparing the second cluster of points with the second group of points; and

determining a value representative of matched points between the first cluster of points and the first group of points and matched points between the second cluster of points and the second group of points.

14.   (Original) A method as set forth in claim 1 and further comprising assessing T-wave alternans data of the ECG signal.

wherein the feature map is used to visually determine whether an alternans pattern of variation exists, such that an alternans pattern of variation exists if the first group of points are spaced from the second group of points and an alternans pattern of variation does not exist if the first group of points are not spaced from the second group of points.

24.   (New) A method of determining alternans data of an ECG signal, the method comprising:

determining at least one value representing at least one morphology feature of each beat of the ECG signal;

generating a set of data points based on a total quantity of values and a total quantity of beats, the data points each including a first value determined using a first mathematical function and a second value determined using a second mathematical function;

separating the data points into a first group of points and a second group of points;

generating a feature map by plotting the first group of points and the second group of points in order to assess an alternans pattern of variation;

processing the data points using a cluster analysis, the cluster analysis generating a first cluster of points and a second cluster of points;

comparing the first cluster of points with the first group of points;

comparing the second cluster of points with the second group of points; and

determining a value representative of match points between the first cluster of points and the first group of points and matched point between the second cluster of points and the second group of points.